

Appl. No. 10/775,689

Attorney Docket No. HSJ920030091US1

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1. (currently amended) A method for improving the format efficiency of a hard disk of a hard disk drive, the hard disk drive having a rotary actuator and a read/write head, the read/write head having a read element ~~that is offset from~~ and a write element, the method comprising:

determining a radial position of the read/write head with respect to the hard disk;
writing ~~a data track having a length between successive servo sample areas that is based on an arc of the rotary actuator, the radial position of the read/write head with respect to the hard disk and the offset between the read element and the write element~~ data tracks on the hard disk at varying distances from a center of the hard disk, so that a length of an unused area between each of the data tracks and a subsequent servo sample is substantially equal to a separation between the read element and the write element as measured along a line that is tangent to a corresponding one of the data tracks.

Claim 2. (currently amended) The method according to claim 1, further comprising determining ~~the length~~ lengths of the data ~~track~~ tracks from a look-up table.

Claim 3. (currently amended) The method according to claim 1, further comprising determining ~~the length~~ lengths of the data ~~track~~ tracks based on a determination of the arc of the rotary actuator, the determined position of the read/write head with respect to the hard disk, and ~~the~~ a physical offset between the read element and write element.

Claim 4. (currently amended) The method according to claim 1, further comprising determining ~~the length~~ lengths of the data ~~track~~ tracks based on an angular position of the rotary actuator.

Claim 5. (currently amended) A disk drive, comprising:
a rotary actuator;

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a read/write head having a read element that is offset from a write element; and
at least one hard disk drive, wherein the hard disk drive having at least one data track having a length between successive servo sample areas that is based on an arc of the rotary actuator, the radial position of the read/write head with respect to the hard disk and the offset between the read element and the write element is configured to write data to data tracks on the hard disk at varying distances from a center of the hard disk, and a length of an unused area between each of the data tracks and a subsequent servo sample is substantially equal to a separation between the read element and the write element as measured along a line tangent to a corresponding one of the data tracks.

Claim 6. (currently amended) The hard disk drive according to claim 5, wherein ~~the~~ a length of each data track is determined from a look-up table.

Claim 7. (currently amended) The hard disk drive according to claim 5, wherein ~~the length~~ lengths of the data ~~track is~~ tracks are based on a determination of the arc of the rotary actuator, ~~the~~ a determined position of the read/write head with respect to the hard disk, and the physical offset between the read element and write element.

Claim 8. (currently amended) The hard disk drive according to claim 5, wherein ~~the length~~ lengths of the data ~~track is~~ tracks are based on an angular position of the rotary actuator.

Claim 9. (currently amended) A system for reading and writing data, comprising:

a rotary actuator;

a read/write head having a read element and a write element; and

at least one hard disk drive configured to write data to data tracks on a hard disk at varying distances from a center of the hard disk, wherein lengths of the data tracks vary at varying distances from a center of the hard disk such that the length of unused areas between the data tracks and subsequent servo samples varies with a relative offset between the read element and the write element at a corresponding distance from the center of the hard disk a length of an unused area between each of the data tracks and a subsequent servo sample is proportional to a

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separation between the read element and the write element as measured along a line tangent to a corresponding one of the data tracks.

Claim 10 (previously presented) The system according to claim 9 wherein the length of each of the data tracks is determined from a look-up table.

Claim 11 (new) The method according to claim 1, wherein writing the data tracks on the hard disk further comprises writing data tracks on the hard disk so that edges of the data tracks form a radius of curvature that is smaller than a radius of curvature formed by edges of the subsequent servo samples.

Claim 12 (new) The disk drive according to claim 5, wherein the at least one hard disk drive is configured to write the data tracks on the hard disk so that edges of the data tracks form a radius of curvature that is smaller than a radius of curvature formed by edges of the subsequent servo samples.

Claim 13 (new) The system according to claim 9, wherein the at least one hard disk drive is configured to write the data tracks on the hard disk so that edges of the data tracks form a radius of curvature that is smaller than a radius of curvature formed by edges of the subsequent servo samples.